

No: 12/92

Ref: EW/G92/09/29

Category: 2c

Aircraft Type and Registration: Robinson R22 Beta, G-RENT

No & Type of Engines: 1 Lycoming O-320-B2C piston engine

Year of Manufacture: 1988

Date & Time (UTC): 30 September 1992 at 1525 hrs

Location: Newtownards Airfield, Northern Ireland

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Severe damage to cabin, tail boom, main rotor and tail rotor

Commander's Licence: Student Pilot

Commander's Age: 40 years

Commander's Flying Experience: 100 hours (of which 32 were on type)
Last 90 days - 29 hours
Last 28 days - 2 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and AAIB inspection of aircraft

The student pilot had been engaged upon a final solo flight prior to the issue of his PPL(H). Conditions were good, with a light variable wind and no significant weather. The pilot had completed the flight, a local detail of some 50 minutes, and had successfully made an approach and landing on the grass to the East of the runway 04/22. He had then lifted-off into a hover at about 8 feet agl, turned through 180°, and made a radio call stating that he was hover-taxiing back to the helipad. The pilot reported that he then heard a loud 'clunk' and the helicopter lurched forward and yawed. His impression was that the tail rotor had struck the ground. The helicopter became very difficult to control, and the engine and rotor RPM pointers swung towards the top of their indicated ranges. The pilot closed the throttle and lowered the collective lever slightly, but stated that the pedals had no effect and the low rotor RPM horn activated. The helicopter rolled significantly and started spinning to the extent that the pilot could not regain control. It struck the ground and came to rest on its side, with the tail boom severed. However there was no fire and the pilot, who was not injured, was able to escape unaided.

Upon subsequent reflection the pilot considered that his initial belief that the tail rotor had struck the ground was probably incorrect, and that a mechanical failure was more likely. He stated that the pilot of a fixed wing aircraft, which was taxiing nearby, had not observed any unusual characteristics associated with the hover-taxi until the helicopter had begun to yaw and spin.

Examination of the helicopter showed that the tail boom had been severed by several main rotor strikes, and that the tail rotor drive shaft had been turning when this occurred. Both main rotor blades had been heavily damaged, and the pitch control link to one blade had broken. The tail rotor blades had both broken-off near their roots. No major damage had occurred to the empennage assembly, but it had severed from the tail boom. The tail rotor gearbox casing was cracked, but the gearbox was free to turn and showed no pre-impact failure. The tail rotor pitch control mechanism was examined for possible seizure, but was considered to have been serviceable before impact. All the breaks in the tail rotor drive system were examined by a metallurgist and confirmed to be overload fractures, having occurred during impact. There was thus no evidence identified of any pre-existing defect which may have caused the accident.